

Los Alamos
NATIONAL LABORATORY

CONTROLLED DOCUMENT

(Uncontrolled document if not printed in red)

TA-53 Facility Management

Copy Number 0

Uncontrolled copies may be made; however, users have the ultimate responsibility to ensure that they are working with the latest revision of this controlled document.

LANSCCE Facility Implementing Requirement

Generator Waste Certification Program

53 FIR 404-00-01

Effective date: September 30, 1999

APPROVALS

Prepared by: _____
John Pieniazek, LANSCE-FM
Waste Management Coordinator

Date: _____

Reviewed by: _____
C. John Graham, LANSCE-FM
Deputy Group Leader

Date: _____

Robin Cyr, LANSCE-FM
ES&H Team Leader

Date: _____

Approved by: _____
James Fraser, LANSCE-FM
TA-53 Facility Manager

Date: _____

TA-53 Facility Implementing Requirement	<i>Generator Waste Certification Program</i>	53 FIR 404-00-01 Effective Date: 9/30/99 Page 3 of 15
---	--	---

1.0 INTRODUCTION

All radioactive wastes generated within Facility Management Unit 61 (FMU 61) will be managed in accordance with the *53 PL 404-00-01 Generator Waste Certification Program Plan*. The document herein is the implementing procedure for the GWCP program at LANSCE/FMU 61, as required by Los Alamos National Laboratory (Laboratory) Implementation Requirements (LIR) 404-00-01, *Waste Acceptance, Characterization, and Certification Program*. In addition, implementation of this plan will ensure that all radioactive wastes generated within FMU 61 will meet the requirements of *LANL Waste Acceptance Criteria (WAC)*, PLAN-WASTEMGMT-002.

2.0 PURPOSE

The primary goals of this procedure are to establish an efficient and consistent administrative system for managing FMU 61 generated radioactive wastes and to enable the generator to complete the waste stream certification documentation accurately. In this manner, radioactive waste streams can be certified, and that certification documented, in accordance with LIR 404-00-01 and the LANL WAC.

3.0 SCOPE

This procedure applies to all “existing” and “newly generated” radioactive wastes generated within TA-53/FMU 61, and to all TA-53/FMU 61 tenant waste generators and project/process leaders generating and/or managing these wastes.

4.0 DEFINITIONS AND ACRONYMS

4.1 Definitions

Acceptable Knowledge — A waste stream characterization method that can be used to meet all or part of the waste analysis requirements appropriate for the waste media. The method may include documented process knowledge, supplemental waste analysis data, and/or facility records of analysis.

Characterization — The determination of a waste’s physical, chemical, and radiological characteristics with sufficient accuracy to permit proper segregation, treatment, storage, and disposal according to the final treatment, storage, or disposal facility’s (TSDF’s) waste acceptance criteria (WAC).

Existing Waste — Radioactive waste that has an active Waste Profile Form (WPF) submitted to SWO Waste Services prior to December 17, 1999.

TA-53 Facility Implementing Requirement	<i>Generator Waste Certification Program</i>	53 FIR 404-00-01 Effective Date: 9/30/99 Page 4 of 15
---	--	---

Newly Generated Waste — Radioactive waste that is ‘non-planned’ or not ‘existing’ and has not been certified through the GWCP process.

Non-Planned Waste — Radioactive waste generated from an unplanned event or unusual situation such as a spill, leak, etc. and the mitigation of the unusual situation.

Project/Process Leader — The project leader of a project that generates a waste or the supervisor in charge of a waste-generating process.

Radiological Controlled Area (RCA) — An area to which access is managed to protect individuals from exposure to radiation or radioactive materials. In an RCA controlled for contamination, a reasonable potential exists for contamination to occur at levels in excess of those specified in DOE order 5400.5, Table 1, or a reasonable potential exists for an individual to receive more than 0.1 rem committed effective dose equivalent during a year from intakes.

In a RCA controlled for volume contamination, a reasonable potential exists for the presence of volume contaminated materials that are not individually labeled.

At TA-53, RCAs are only controlled for contamination and volume contamination. Therefore, the “controlled for volume contamination” and “controlled for contamination” postings constitute the control boundaries for waste removal activities addressed by this procedure.

Waste Generator — A person assigned to a waste generating process who is knowledgeable regarding the process and is responsible for the waste being generated. The generator is not necessarily the person physically generating the waste.

Waste Management Coordinator (WMC) — the individual responsible for coordinating waste management activities on behalf of waste generators, line managers, facility managers, the waste management groups, and other Laboratory organizations. This individual also coordinates resolution of waste management issues on behalf of his or her waste generating organizations, and reviews documents pertaining to the management of waste.

Waste Stream — A waste or group of wastes from one or more processes with similar regulatory, physical, chemical, and/or radiological characteristics. These characteristics are usually grouped according to WAC requirements for treatment, storage, characterization, and disposal.

TA-53 Facility Implementing Requirement	<i>Generator Waste Certification Program</i>	53 FIR 404-00-01 Effective Date: 9/30/99 Page 5 of 15
---	--	---

4.2 Acronyms

AK	acceptable knowledge
FMU-61	Facility Management Unit 61
GWCP	Generator Waste Certification Program
HCP	Hazard Control Plan
LANL	Los Alamos National Laboratory
LANSCE	Los Alamos Neutron Science Center
LIG	Laboratory Implementing Guidance
LIR	Laboratory Implementing Requirements
LLW	low-level radioactive waste
MLLW	mixed low-level radioactive waste
PPL	process/project leader
RCA	radiological controlled area
RCT	Radiological Control Technician
SWO	Solid Waste Operations
TSDF	treatment, storage, or disposal facility
WAC	waste acceptance criteria
WMC	waste management coordinator
WPF	Waste Profile Form

5.0 PROCEDURE

This section describes the implementing process for radioactive waste certification. The process requirements apply to both new and existing activities producing radioactive wastes.

For newly planned radioactive waste streams, no work can begin until the WMC approves the initial certification. Existing radioactive waste streams which have been managed prior to the implementation of this GWCP procedure shall be incorporated into this procedure as soon as is possible. For non-planned radioactive waste streams generated from unusual events (i.e. spills), the certification process should be addressed after the situation generating the waste has been stabilized.

Each radioactive waste stream will undergo the waste certification process once. Thereafter, the waste stream and characterization documentation will be reviewed and re-certified annually or when waste stream characteristics change.

Application to Experimental Work or Other Dynamic Processes

The methods provided in this procedure are readily adaptable to all types of work, including experimental work. The documentation may be very specific for well-

TA-53 Facility Implementing Requirement	<i>Generator Waste Certification Program</i>	53 FIR 404-00-01 Effective Date: 9/30/99 Page 6 of 15
---	--	---

defined, consistent processes, but likewise, may be much less specific for experimental work or other dynamic processes.

Some laboratory and experimental activities operate in dynamic modes that result in frequent waste stream changes and limit the ability of the generators to accurately specify waste products in advance. Thus, post generation evaluation or analysis may be the only feasible method of waste characterization. In these circumstances, the waste certification program documentation can describe methods for ensuring that the information necessary to efficiently characterize wastes is collected and maintained by the generator. Covering waste management issues in the applicable experimental procedures or hazard control plans (HCPs) will help to ensure that experimenters document the necessary information to allow the waste to be efficiently characterized and managed. These documents can address methods for evaluating new waste streams at the time an experiment is proposed/designed.

Recognizing that waste products from experimental work and other dynamic processes may be more difficult to accurately define prior to actual generation, the recommended documentation contained in this procedure can still be used to establish an effective GWCP. The documentation should be as specific as possible, with the understanding that some documentation will be vague by necessity. By carefully documenting the materials that go into a process along with the careful control and segregation of any waste products produced, experimenters can ensure that the processes are conducted in a manner satisfying GWCP requirements.

5.1 Process Mapping and Waste Stream Identification

5.1.1 Process Mapping

1. The project/process leader (PPL) identifies any work/activities that potentially generate a waste.
2. The PPL assigns or identifies a generator for each waste-generating process. This person must be knowledgeable regarding the process and must be trained in the LANSCE/FMU 61 GWCP as a waste generator.
3. The generator, with the WMCs assistance if needed, maps the process to indicate inputs and outputs, including whether the outputs are products or wastes. Mapping is a method that flowcharts or outlines the process in order to identify its inputs and outputs.
4. The waste generator, with the WMCs assistance if needed, determines if wastes are generated in the process. **If no wastes are being generated, document this outcome and STOP.**

5.1.2 TA-53 Waste Stream Identification Record

TA-53 Facility Implementing Requirement	<i>Generator Waste Certification Program</i>	53 FIR 404-00-01 Effective Date: 9/30/99 Page 7 of 15
---	--	---

The waste generator, assisted by the PPL and the WMC if necessary, completes a TA-53 Waste Stream Identification Record (see Attachment 1) for each waste-producing process. This form requires:

- Process description, location of process, PPL, waste generator, WMC
 - For each radioactive waste stream in the process, a description of the waste, the estimated annual volume, the contaminants, and the tentative waste classification
 - Each radioactive waste stream needs to be sequentially numbered starting with number one.
 - The initial revision number for the document is zero.
1. Provide process mapping/flowcharting documentation and information and submit along with the TA-53 Waste Stream Identification Record to the WMC.
 2. After agreeing on the information, the PPL, the generator, and the WMC sign the completed form. The original form is submitted to the WMC for review and recordkeeping.
 3. The WMC assigns a unique Waste Process Identification Number used to identify this waste producing process, including the revision number and the date. This number is used on all subsequent forms. The WMC then returns a copy of the form to the PPL and the generator.
 4. The WMC creates a new file to receive and keep secure all subsequent information relevant to the Waste Process Identification Number activity.

5.2 Waste Stream Assessment and Characterization

For each radioactive waste stream indicated on the TA-53 Waste Stream Identification Record, one Waste Profile Form (WPF) (Form 1346), and one TA-53 Waste Stream Assessment Record (see Attachment 2) is completed.

5.2.1 Waste Profile Form

The WPF is completed as provided in LIG 404-00-03.0, *Waste Profile Form Guidance*.

TA-53 Facility Implementing Requirement	<i>Generator Waste Certification Program</i>	53 FIR 404-00-01 Effective Date: 9/30/99 Page 8 of 15
---	--	---

5.2.2 TA-53 Waste Stream Assessment Record

1. The generator completes the header information identifying the waste process ID number, waste stream number, reason for evaluation, and date.
2. The generator, with the assistance of the WMC and the PPL if necessary, assesses the waste generating process for waste prevention/minimization.
3. If appropriate, the generator should describe the segregation activities used to eliminate or minimize the waste stream. The documented evaluation should address:
 - Segregation of clean vs. contaminated wastes
 - Segregation based on potential concentrations, if reduced concentrations may be handled less restrictively
 - Segregation and collection of similar waste products
4. The generator documents the waste prevention/minimization assessment in the Waste Prevention/Minimization section of the form.
5. The generator, with the assistance of the WMC and PPL if necessary, assesses the waste generating process to determine the radiological characterization of the waste. The generator, with assistance from an ESH-1 Radiological Control Technician (RCT), and a WMC if necessary, must identify the radioactive isotopes present and the activity level of each isotope, based on data from the appropriate radiological assay method or acceptable knowledge. The generator also assesses the controls used to minimize radiological waste generation (if this is applicable). The generator should contact an RCT, and the WMC if necessary, for assistance in determining the appropriate radiological assay method or acceptable knowledge for radiological characterization of the waste.
6. If radiological waste is being generated, the generator follows the appropriate portions of the following documents:
 - TA-53 Procedure 53 FMP 105-01.1, *Control of Radioactive Waste*.
 - ESH-1/TA-53 Procedure ESH-1/TA-53-DP-703-R0, *Packaging, Labeling, and Disposing of Chemical, Mixed and Low-Level Radioactive Waste at TA-53*.

TA-53 Facility Implementing Requirement	<i>Generator Waste Certification Program</i>	53 FIR 404-00-01 Effective Date: 9/30/99 Page 9 of 15
---	--	---

- ESH-1/TA-53 Procedure ESH-1/TA-53-DP-812-R2, *Procedure for Processing Potential Volume/Bulk Contamination at TA-53.*
 - LIR 402-704-01.2, *Contamination Control.*
7. The generator documents the waste's radiological assessment and characterization in the Radiological Assessment and Characterization section of the form.
 8. The generator, with the assistance of the WMC, must provide documentation of approved waste characterization methods, consistent with federal, state, and Laboratory requirements that are authorized for use.

Characterization documentation should include:

- Waste producing process and waste product (including physical form, if not obvious)
- Potential contaminants
- Characterization method to be employed
- Supporting documentation (such as copies of logs, notebooks, process descriptions, industry reports, etc.)
- Work package modifications

See LIG 404-00-02, *Acceptable Knowledge*, for guidance on AK methods used to segregate and characterize waste streams, and for examples of information sources for AK.

NOTE: Waste characterization may require reevaluation once the waste is produced.

9. The generator, with the assistance of the PPL, compile the available documentation to be included as the waste stream characterization package. The generator checks the appropriate boxes in the Characterization Documentation section of the form, as appropriate.
10. The generator submits the waste stream characterization package documentation to the WMC for review, along with the completed TA-53 Waste Stream Assessment Record, once it is completed.

TA-53 Facility Implementing Requirement	<i>Generator Waste Certification Program</i>	53 FIR 404-00-01 Effective Date: 9/30/99 Page 10 of 15
---	--	--

11. With the assistance of the WMC, the generator checks the boxes in the Additional Characterization Issues section that apply to the content or classification of the waste.
12. The WMC is also contacted to determine if there is a disposal path for the waste. If there is no disposal path for the waste, the WMC will assist the generator with acquiring DOE approval for the waste, per Notice 0022 issued on 10/30/98 by EM Division.
13. For the Characterization Method and Justification section of the form, the generator, with assistance from the PPL and/or the WMC, must determine if sufficient AK documentation is available to fully characterize the waste (see LIG 404-00-02). If not, the generator must contact the WMC to coordinate sampling and analysis of the waste. The generator must indicate the characterization method (AK or analytical data) in this section.
14. The generator must describe work controls in place to ensure accountability and integrity of the waste stream from “cradle-to-grave”.

Controls should address:

- Generation, collection, segregation, storage and packaging
- Appropriate safety elements for safe handling of waste
- Control and tracking of container contents
- Sample accountability and management
- Manifesting and transportation
- Other controls, as appropriate, to ensure that waste received at the TSDF is accurately described.

These controls may be incorporated in detailed operating procedures, work orders, HCPs, radioactive work permits, special work permits, etc.

15. The generator, with the assistance of the WMC and the PPL, assesses the work controls in place.
16. In the Process Controls Documentation section, the generator evaluates the process documentation in place to ensure adequate work controls for the generation and management of the waste are available. The generator also describes actions to be taken to establish appropriate process work controls, and submits changes (if any) to the waste stream’s work controls documentation.

TA-53 Facility Implementing Requirement	<i>Generator Waste Certification Program</i>	53 FIR 404-00-01 Effective Date: 9/30/99 Page 11 of 15
---	--	--

17. Upon the completion of the form, the generator and the PPL sign and date the form.

18. The form is then submitted to the WMC for review and record keeping.

5.3 Review of the TA-53 Waste Stream Assessment Record

1. The WMC reviews the TA-53 Waste Stream Assessment Record to verify that the following areas are adequately addressed and documented:
 - Waste prevention and minimization
 - Radiological assessment and characterization
 - Characterization documentation
 - Characterization method and justification
 - Process and work controls assessment and documentation
2. If the WMC has concerns with any areas in the step above, the WMC documents these concerns along with any agreements reached with the generator and the PPL to resolve the concerns.
3. The WMC then reviews the characterization documentation provided by the generator to determine if the preliminary waste type classification is adequately addressed and documented. If preliminary classification indicates a mixed low-level waste, the WMC needs to contact the Solid Waste Operations (SWO) Mixed Low-Level Waste Team for assistance on treatment, storage, and disposal site options and characterization requirements.
4. The WMC checks any AK documentation for adequacy and determines if sampling and analysis is needed. If analysis is needed for further characterization, the WMC will coordinate sampling and analysis of the waste, as appropriate.
5. The WMC identifies the potential treatment, storage, and disposal facilities in coordination with SWO. If the WMC and SWO identify no path forward for disposal, the WMC must have the generator contact the Work Management Program Office to obtain Department of Energy approval to generate a waste that has no known disposal options.
6. If the WMC has concerns with any areas above, the WMC documents these concerns along with any agreements reached with the generator and the PPL to resolve the concerns.
7. The WMC reviews the preliminary waste classification, determining and documenting what type of waste storage and management controls are needed.

TA-53 Facility Implementing Requirement	<i>Generator Waste Certification Program</i>	53 FIR 404-00-01 Effective Date: 9/30/99 Page 12 of 15
---	--	--

8. After review, the WMC signs and dates the TA-53 Waste Stream Assessment Record to certify that the waste stream is sufficiently characterized and all necessary documentation is in place in accordance with the GWCP.

5.4 Waste Generation

1. Prior to waste generation:

- The WMC and the generator work to establish the controls, as identified in the TA-53 Waste Stream Assessment Record, to manage the waste after it has been generated.
- The PPL and the generator work with the process personnel on changes associated with work documents stemming from the generator waste assessment, noted on the TA-53 Waste Stream Assessment Record.

2. During waste generation:

- The PPL, the generator, and the WMC monitor the process for compliance with the initial certified waste stream characterization package and ensure that the waste outputs are in accordance with the waste stream characterization package.
- If sampling and analysis were necessary, the WMC coordinates the appropriate sampling and analysis.

3. If any significant deviation from the process described in the initial certification package is deemed necessary, **WORK MUST STOP** and the WMC must be notified.

Examples of significant deviation from the expected outputs are:

- A solid physical form was expected but a liquid was produced.
- Data indicates the waste has a different waste classification than the initial waste classification.

NOTE: The concentrations of some constituents may vary from those listed, but do not change the classification of the waste type. This is an example of an insignificant deviation from the expected output.

4. Until the waste is removed for disposal, the generator and the WMC store and manage the waste according to the methods detailed in the initial or final certification package.

TA-53 Facility Implementing Requirement	<i>Generator Waste Certification Program</i>	53 FIR 404-00-01 Effective Date: 9/30/99 Page 13 of 15
---	--	--

5.5 Re-Evaluation and Final Certification of a Waste Stream

1. If sampling and analysis was completed, the WMC must first receive and review the analytical data from the laboratory to compare results to anticipated waste characteristics before continuing with the next steps.
2. If the analytical data or waste generated shows insignificant deviations from what was anticipated in the initial waste stream characterization package, the WMC completes the TA-53 GWCP Change Control Documentation form (see Attachment 3), indicating insignificant deviations and attaching associated documentation.
3. If the analytical data or waste generated shows significant deviations from what was anticipated in the initial waste stream characterization package:
 - The WMC stops waste generation until the waste stream characterization is re-evaluated.
 - The WMC, coordinating with the generator and the PPL, re-evaluates the initial waste stream characterization package, seeking the sources of the significant deviations.
 - The WMC, coordinating with the generator and the PPL, makes revisions to the initially certified waste stream characterization documentation and attaches the associated documentation.
4. The WMC evaluates the documentation for changes in waste stream characteristics in order to meet the requirements of LIR 404-00-01.

5.6 Waste Stream Management

During waste stream generation:

- The PPL, the generator and the WMC monitor the generation process for compliance with the certified waste stream package until waste is picked-up for disposal.
- The generator keeps the WMC informed of volumes and rates of waste generation.
- The PPL, the generator, and the WMC manage and control the waste stream in accordance with the certified waste stream package.
- The generator and the WMC complete the Laboratory waste management requirements for waste profiling and disposal documentation.

5.7 Approved Waste Stream Re-Evaluation and Revision

Certified waste streams must be re-evaluated:

TA-53 Facility Implementing Requirement	<i>Generator Waste Certification Program</i>	53 FIR 404-00-01 Effective Date: 9/30/99 Page 14 of 15
---	--	--

- Annually for actively generating waste streams.
 - Process changes affecting the waste stream generation.
 - Changes in waste stream's characteristics
 - Changes in waste stream's classification and management regulations
 - Changes in waste stream's path forward for disposal
1. For the reasons listed above or for any other reason which causes the waste stream to be re-evaluated, the PPL, the generator and the WMC must review the final certification package.
 2. If the review shows insignificant deviations from the original waste stream characterization package, the WMC completes the TA-53 GWCP Change Control Documentation form, indicating insignificant deviations and attaching associated documentation.
 3. If the review shows significant deviations from the original waste stream characterization package:
 - The WMC stops waste generation until waste stream characterization is re-evaluated.
 - The WMC, coordinating with the generator and the PPL, documents revisions to the certified waste stream characterization documentation on the TA-53 GWCP Change Control Documentation form, attaching associated documentation.
 4. The WMC evaluates the documentation associated with changes in waste stream characteristics in order to meet the requirements of LIR404-00-01, and the *53 PL 404-00-01 Generator Waste Certification Program Plan*.
 5. If the WMC has concerns with any areas above, the WMC documents the concerns and describes any agreements reached with the PPL and the generator to resolve the concerns.
 6. When all reviews are completed and all significant issues resolved, the WMC signs the Final Certification Record.
 7. The WMC notifies the generator and the PPL of the final certification of the waste stream.

5.8 Quality Assurance/Quality Control (QA/QC)

PPLs shall ensure their waste processing programs are consistent with the following documents, as applicable:

TA-53 Facility Implementing Requirement	<i>Generator Waste Certification Program</i>	53 FIR 404-00-01 Effective Date: 9/30/99 Page 15 of 15
---	--	--

- *Implementation Guide for Use with 10 CFR 830.120, Quality Assurance, G/830.120*
- Title 10 Code of Federal Regulations, Section 830.120
- QA requirements identified in treatment, storage, and disposal permits
- Department of Energy (DOE) Order 5700.6C, “Quality Assurance”
- Laboratory and Facility Quality Management Plans

Facility QA representatives shall review program compliance for selected waste streams at least annually. This review shall include, as a minimum:

- Verification that required documentation is included in the package
- Verification that the work control documents cited in the package establish the controls specified in the certification documentation
- Random verification that selected elements of process descriptions, work controls or other documented activities are in place and/or are being performed as described in submitted documentation

6.0 REQUIRED RECORDS

The records generated as a result of this procedure include:

- TA-53 Waste Stream Identification Record.
- Waste Profile Form (Form Number 1346).
- TA-53 Waste Stream Assessment Record.
- TA-53 GWCP Change Control Documentation form

NOTE: Each of these documents may include additional, associated documentation.

The WMC is responsible for maintaining active records as a result of this process in physical files maintained in a complete systematic and compliant manner.

7.0 ATTACHMENTS

- Attachment 1. TA-53 Waste Stream Identification Record
- Attachment 2. TA-53 Waste Stream Assessment Record
- Attachment 3. TA-53 GWCP Change Control Documentation form

TA-53 Facility Implementing Requirement	<i>Generator Waste Certification Program</i> Attachment 1	53 FIR 404-00-01 Effective Date: 9/30/99 Page 1 of 2
---	---	--

TA-53 Waste Stream Identification Record

See separate attachment link

TA-53 Facility Implementing Requirement	<i>Generator Waste Certification Program</i> Attachment 1	53 FIR 404-00-01 Effective Date: 9/30/99 Page 2 of 2
---	---	--

TA-53 Waste Stream Identification Record Continuation Sheet

See separate attachment link

TA-53 Facility Implementing Requirement	<i>Generator Waste Certification Program</i> Attachment 2	53 FIR 404-00-01 Effective Date: 9/30/99 Page 1 of 2
---	---	--

TA-53 Waste Stream Assessment Record

See separate attachment link

TA-53 Facility Implementing Requirement	<i>Generator Waste Certification Program</i> Attachment 2	53 FIR 404-00-01 Effective Date: 9/30/99 Page 2 of 2
---	---	--

TA-53 Waste Stream Assessment Record (continued)

See separate attachment link

TA-53 Facility Implementing Requirement	<i>Generator Waste Certification Program</i> Attachment 3	53 FIR 404-00-01 Effective Date: 9/30/99 Page 1 of 1
---	---	--

TA-53 GWCP Change Control Documentation

See separate attachment link